

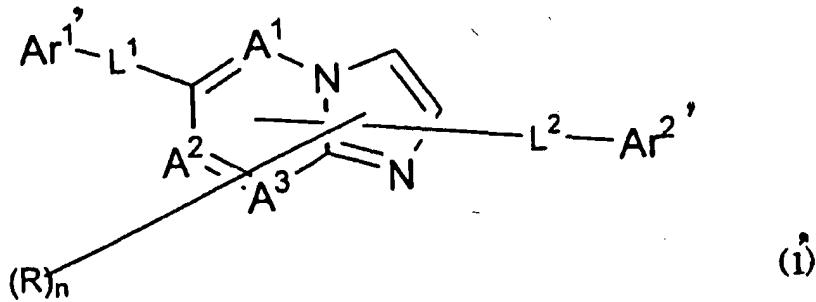
REMARKS

Claims 1-3, 6, 9-11 and 13-21, as amended, remain herein. Claims 9 and 10 have been amended. Support for the amendments may be found throughout the specification (see, e.g., original claims). Claim 7 has been cancelled.

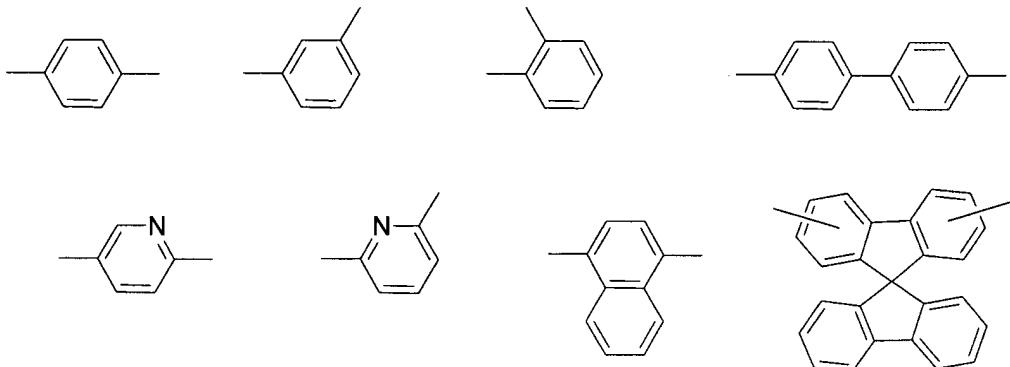
1. Claims 9 and 10 were rejected under 35 U.S.C. § 112, second paragraph. Claim 9 has been amended to moot this rejection

2. Claims 9-11 and 13 were rejected under 35 U.S.C. § 103(a) over Nakatsuka et al. JP 2001-035664.

Applicants' claim 9 recites a derivative of heterocyclic compound having nitrogen atom represented by general formula (1'):



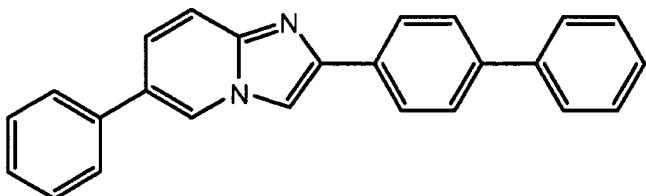
wherein one of $-L^1-Ar^1'$ and $-L^2-Ar^2'$ comprises a divalent group as the L^1 or L^2 group and a substituted or unsubstituted condensed cyclic group having 10 to 60 nuclear carbon atoms as the Ar^1' or Ar^2' group, wherein the divalent group is selected from the following groups:



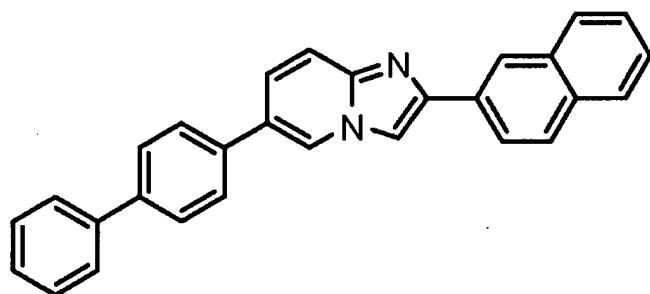
Nakatsuka does not disclose applicants' claimed $-L^1-Ar^1$ or $-L^2-Ar^2$ structure comprising both one of the above divalent groups at the L^1 or L^2 group position and a substituted or unsubstituted condensed cyclic group having 10 to 60 nuclear carbon atoms at the Ar^1 or Ar^2 group position. Neither Nakatsuka's general formula (1-A) nor any of the exemplified compounds discloses applicants' claimed general formula (1') including the claimed divalent group substituted with a condensed cyclic group. In Nakatsuka's compound A-50, the naphthyl group is directly linked to the heterocyclic structure, not to one of applicants' claimed divalent groups, as required by applicants' claims. As shown with Comparative Example 3, when the condensed cyclic group of Compound A is directly linked to the heterocyclic structure instead of applicants' claimed divalent group, the organic electroluminescent device exhibits significantly lower luminance and efficiency of light emission (compare the device of Examples 18 to 21 to that of Comparative Example 3 at page 144 of applicants' specification (showing excellent luminance and higher light efficiency even at lower voltage)).

The Office Action further states that it would have been obvious to a person of ordinary skill in the art to further functionalize Nakatsuka's compounds. However, applicants' claims require not just further functionalization of Nakatsuka's compounds but substitution of applicants' claimed divalent group with a condensed cyclic group. Nakatsuka says nothing about

including a condensed cyclic group as a further substituent to Nakatsuka's compounds. For the same reasons, the following compounds disclosed at page 7 of the Office Action and which would allegedly result from the further functionalization of Nakatsuka's compounds, fail to meet applicants' claims:



: this compound fails to disclose a condensed cyclic group.



: in this compound, the naphthyl group is directly linked to the heterocyclic structure, not to a divalent group, as required by applicants' claims.

Alleged obviousness, based on structural similarity, is rebuttable by proof that the claimed compounds possess unexpectedly advantageous or superior properties. MPEP § 2144.09(VII) (citing In re Papesch, 315 F.2d 381 (C.C.P.A. 1963) and In re Wiechert, 370 F.2d 927 (C.C.P.A. 1967)).

Applicants' claimed organic electroluminescent device exhibits superior and unexpected properties, namely, excellent luminance and higher light efficiency even at lower voltage. For instance, the absence of the claimed Ar^1 group results in a significantly lower luminance and efficiency of light emission (compare the device of Examples 18 to 21 to that of Comparative

Example 3 (showing excellent luminance and higher light efficiency even at lower voltage)).

See also, applicants' specification at page 3, line 15 to page 4, line 5 (emphasis added here), specifically distinguishing Nakatsuka and stating:

Furthermore, a blue-light-emitting device with the use of a heterocyclic compound having nitrogen atom is disclosed in Japanese Unexamined Patent Application Laid-Open No. 2001-6877, and an organic EL device with the use of a heterocyclic compound having nitrogen atom for a light emitting material or a hole injection transport material is disclosed in Japanese Unexamined Patent Application Laid-Open No. 2001-35664. The invention of Japanese Unexamined Patent Application Laid-Open No. 2001-6877 provides blue-light emission having peak wave-length in 430 to 480 nm, and the invention of Japanese Unexamined Patent Application Laid-Open No. 2001-35664 [Nakatsuka] provides a luminance of about 500 cd/m² under the application of an electric voltage of 6 V when using the heterocyclic compound having nitrogen atom as hole injection material, and also provides a luminance of about 2300 cd/m² under the application of electric voltage of 12 V when using the compound as a light emitting material. However, the voltage was too high to keep practical performance and an organic EL device having excellent efficiency of light emission under the application of lower electric voltage was required.

Nakatsuka discloses nothing that would have suggested applicants' claimed invention or its attendant advantages to one of ordinary skill in this art. There is no disclosure or teaching in Nakatsuka, or anything else in this record, that would have suggested the desirability of modifying any portions thereof effectively to anticipate or suggest applicants' presently claimed invention. Thus, applicants' claimed compounds and EL devices are not obvious over Nakatsuka. Applicants respectfully request reconsideration and withdrawal of this rejection.

Accordingly, all claims are now fully in condition for allowance and a notice to that effect is respectfully requested. The PTO is hereby authorized to charge/credit any fee deficiencies or overpayments to Deposit Account No. 19-4293. If further amendments would place this application in even better condition for issue, the Examiner is invited to call applicant's undersigned attorney at the number listed below.

Respectfully submitted,

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